CLAIMS

1. (currently amended) A predistorter arrangement for linearising a distorting element, the predistorter arrangement comprising:

a pilot generator ~~adapted to~~ that generates a composite signal comprising an input signal and a pilot signal,

a predistorter ~~adapted to~~ that predistorts the composite signal to produce a predistorted signal which is supplied to an input of the distorting element, and

an error corrector ~~adapted to~~ that (1) receives a feedback signal corresponding to an output signal generated by the distorting element in response to the predistorted signal, (2) detects, in the feedback signal, cross-modulation distortion signals derived from cross-modulation of the input signal on the pilot signal within the distorting element, wherein the cross-modulation of the input signal on the pilot signal within the distorting element means that modulation of the input signal results in modulation of the pilot signal in the output signal generated by the distorting element, (3) produces an error correction signal based on the detected cross-modulation distortion signals, and (4) ~~apply~~ applies the error correction signal to the predistorter to adjust the predistortion of the composite signal by the predistorter to reduce the cross-modulation distortion signals in the output signal subsequently generated by the distorting element.

2. (original) A predistorter arrangement as claimed in claim 1, wherein the distorting element is an amplifier.

3. (currently amended) A predistorter arrangement as claimed in claim 2, further comprising a pilot remover located downstream of the amplifier ~~and adapted to~~ that removes the amplified pilot signal from the amplifier output signal prior to or following detection of the presence of distortion signals derived from the pilot signal in the amplifier output signal.

4. (previously presented) A predistorter arrangement as claimed in claim 1, wherein the pilot generator adds a pilot signal to the input signal.

5. (previously presented) A predistorter arrangement as claimed in claim 1, wherein the pilot signal is a multiple tone signal.

6. (original) A predistorter arrangement as claimed in claim 5, wherein the multiple tone pilot signal is a two-tone signal.

7. (previously presented) A predistorter arrangement as claimed in claim 1, wherein the pilot signal is derived from the input signal.

8. (original) A predistorter arrangement as claimed in claim 7, wherein the pilot signal is a frequency translated version of the input signal.

9. (previously presented) A predistorter arrangement as claimed in claim 1, wherein the pilot signal is a single tone signal.

10. (canceled)

11. (previously presented) A predistorter arrangement as claimed in claim 1, wherein the error corrector further detects the presence of distortion signals derived from intermodulation of the pilot signal to control the generation of the error correction signal.

12. (previously presented) A predistorter arrangement as claimed in claim 1, wherein the frequency of the pilot signal is frequency hopped.

13. (previously presented) A predistorter arrangement as claimed in claim 1, wherein the predistorter comprises an input signal path for receiving an input signal which is required to be processed by the distorting element, and a distortion path in which an input signal from the input signal path is processed to generate a distortion signal, which is combined with the input signal in the input signal path to produce the predistorted input signal.

14. (previously presented) A predistorter arrangement as claimed in claim 13, wherein the error corrector correlates the distorting element output signal with the distortion signal to produce an error correction signal.

15. (currently amended) A predistorter arrangement as claimed in claim 14, wherein the distortion path includes an adjuster ~~adapted to~~ that adjusts the distortion signal in phase and amplitude in dependence on the error correction signal.

16. (previously presented) A predistorter arrangement as claimed in claim 15, wherein the adjuster comprises a variable phase shifter and a variable attenuator.

17. (previously presented) A predistorter arrangement as claimed in claim 15, wherein the adjuster comprises an in-phase adjuster and a quadrature phase adjuster.

18. (previously presented) A predistorter arrangement as claimed in claim 1 comprising:

first and second predistorters, the first predistorter processing the input signal to produce a first predistorted input signal which is supplied as an input to the second predistorter, and the second predistorter processing the first predistorted input signal to produce the predistorted input signal supplied to the distorting element;

first and second pilot generators, the first pilot generator generating a first pilot signal in the input signal, and the second pilot generator generating a second pilot signal in the first predistorted input signal; and

first and second error correctors, the first error corrector detecting the presence of distortion signals derived from the first pilot signal in the distorting element output signal to produce a first error correction signal for controlling the processing of said input signal in the first predistorter, and the second error corrector detecting the presence of distortion signals derived from the second pilot signal in the distorting element output signal to produce a second error connection signal for controlling the processing of said first predistorted input signal in the second predistorter.

19. (currently amended) A predistorter arrangement as claimed in claim 18, in which only one of the first and second predistorters ~~are adapted so that only one of them~~ cancels higher order distortion.

20. (previously presented) A predistorter arrangement as claimed in claim 18, in which the first and second error correctors share one or more components in common.

21. (currently amended) A method for linearising a distorting element, the method comprising the steps of:

generating a composite signal comprising an input signal and a pilot signal,

predistorting the composite signal to produce a predistorted signal which is supplied to an input of the distorting element,

receiving a feedback signal corresponding to an output signal generated by the distorting element in response to the predistorted signal,

detecting, in the feedback signal, cross-modulation distortion signals derived from cross-modulation of the input signal on the pilot signal within the distorting element, producing an error

correction signal based on the detected cross-modulation distortion signals, wherein the cross-modulation of the input signal on the pilot signal within the distorting element means that modulation of the input signal results in modulation of the pilot signal in the output signal generated by the distorting element, and

applying the error correction signal to the predistorter to adjust the step of predistorting the composite signal to reduce the cross-modulation distortion signals in the output signal subsequently generated by the distorting element.

22. (original) A method as claimed in claim 21, including first and second predistorter steps, the first step being to process the input signal in a first predistorter to produce a first predistorted input signal which is supplied to the input of a second predistorter in which the second step is carried out by processing the first predistorted input signal to produce the input to the distorting element; first and second pilot generation steps in which first and second pilot signal, respectively, are generated in the first and second predistorters, respectively; and a first and second error correction steps in which the presence of distortion signals derived from the respective pilot signals in the distorting element output signal are detected to produce respective error correction signals which control the processing of signals in the respective first and second predistorter steps.

23. (original) A method as claimed in claim 22, in which one of the predistorters is inhibited from error correction while the other carries out correction to produce a steady state, and is then enabled to carry out correction.

24-28. (canceled)

29. (currently amended) A circuit comprising:

a pilot generator ~~adapted to~~ that generates and adds a pilot signal to a received input signal to generate a composite signal comprising the received input signal and the pilot signal;

a predistorter ~~adapted to~~ that predistorts the composite signal to produce a predistorted signal;

an amplifier ~~adapted to~~ that receives the predistorted signal and generates an amplifier output signal; and

an error corrector ~~adapted to~~ that (1) receives a feedback signal corresponding to the amplifier output signal, (2) detects, in the feedback signal, cross-modulation distortion signals derived from cross-modulation of the input signal on the pilot signal within the amplifier, wherein the cross-modulation of the input signal on the pilot signal within the amplifier means that modulation of the input signal results

in modulation of the pilot signal in the output signal generated by the amplifier, (3) produces an error correction signal based on the detected cross-modulation distortion signals, and (4) ~~apply~~ applies the error correction signal to the predistorter to adjust the predistortion of the composite signal by the predistorter to reduce the cross-modulation distortion signals in the output signal subsequently generated by the amplifier.